National Institute of Environmental Health Sciences

# Association between wind speed and the occurrence of sickle cell acute painful episodes: Results of a case-crossover study

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**Abstract:**

The role of the weather as a trigger of sickle cell acute painful episodes has long been debated. To more accurately describe the role of the weather as a trigger of painful events, we conducted a case-crossover study of the association between local weather conditions and the occurrence of painful episodes. From the Cooperative Study of Sickle Cell Disease, we identified 813 patients with sickle cell anaemia who had 3570 acute painful episodes. We found an association between wind speed and the onset of pain, specifically wind speed during the 24-h period preceding the onset of pain. Analysing wind speed as a categorical trait, showed a 13% increase (95% confidence interval: 3%, 24%) in odds of pain, when comparing the high wind speed to lower wind speed (P Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.007). In addition, the association between wind speed and painful episodes was found to be stronger among men, particularly those in the warmer climate regions of the United States. These results are in agreement with another study that found an association between wind speed and hospital visits for pain in the United Kingdom, and lends support to physiological and clinical studies that have suggested that skin cooling is associated with sickle vasoocclusion and perhaps pain.

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## Resource Description

**Exposure :**

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Meteorological Factors

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:**

resource focuses on specific location

United States

**Health Impact:**

specification of health effect or disease related to climate change exposure

Cardiovascular Effect

**Cardiovascular Effect:** Other Cardiovascular Effect

**Cardiovascular Disease (other):** Sickle Cell Acute Painful Episodes

**Population of Concern:** A focus of content

**Other Vulnerable Population:** People with Sickle Cell Anemia

**Resource Type:**

format or standard characteristic of resource

Research Article

**Timescale:**

time period studied

Time Scale Unspecified

**Vulnerability/Impact Assessment:**

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content